of material sufficiently to be able to machine box threads on diameters larger than the pipe outer diameter, or to machine pin threads on diameters smaller than the pipe inner diameter so as to increase the critical areas of the connection. Reed swages only enough material to form a pin nose seal having a radial thickness on the order of one-tenth of the pipe wall thickness as clearly depicted in his Figures 2-6, in the distal end away from threaded portion 12. His teaching is only to increase thickness at the seal plane so as to increase sealing pressure as discussed in his columns 9, 10 and 11. (Conversely, Watts Figures 2-5 clearly show that threaded portions are swaged, as does Watts page 3 ln 22- page 4 ln 23 and elsewhere.) Had Reed thought of swaging enough material comprising the threads to increase the critical area at the ends of engaged threads, he would have at least mentioned it, but he was obsessed purely with a pin-nosed seal. The art of threaded pipe connections is hundreds of years old and over two-hundred years of engineering efforts have been invested in this country alone. However, no suggestion is on record as is taught on pages 3-5 of the present application or as shown in the drawings which reduces to the minimum, the amount of material that must be swaged to effect thread engagement to diameters larger and/or smaller than the inner and outer pipe diameters.

Claims 2, 6-9 and 20 stand rejected under 35 USC 103(a) as being unpatentable over Reed (US 6,024,646 in view of Bollfrass (US 4,373,754). Bollfrass Fig 2 and col 4 ln 7 discloses the very old practice of swaging the entire wall thickness of the pipe end in a swaging machine at elevated temperatures before any machining has occurred. Bollfrass Fig 3 and Col 5 ln 9 discloses the even older practice of Upsetting the pipe end at even higher temperatures in an upset machine before threading. It should be understood that swaging as depicted by Bollfrass cannot be accomplished on the lathe the threads are machined on because of the heat and extreme forces need to swage full thickness sections, such that the pipe joint must be swaged in special hydraulic swaging machines, heat-treated and then cooled before it can be placed into lathes for threading operations, which multiplies the cost to form the ends. Nowhere does Bollfrass suggest an increase in the critical area of the connection.

Applicant respectfully submits that the claims as amended are novel, in that an answer to a long-felt need has been provided by the present invention in that material not required to be swaged is first removed, the swage is effected to increase the critical area at one or both ends of the engaged threads, and then the threads are machined to final dimensions. To applicants best knowledge and belief, no provider of pipe threads anywhere in the world has practiced the present invention prior to it's filing, during the hundreds of years that pipe threads have been used.

Applicant hereby requests that the application be reconsidered as revised and passed to issue. Please note that applicants name is shown incomplete on PTO-326 (Rev 04-01)

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